Chapter 4.14
Computer-Based Health Information Systems:
Projects for Computerization or Health Management?
Empirical Experiences from India

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ABSTRACT

Large investments are being made to reform the health sector in developing countries as the potential of ICTs in achieving health goals is being increasingly recognized. However, there have been various reports that indicate this potential of ICT is not being fully realized on the ground in particular settings. In this chapter, an empirical investigation of the introduction of health information systems in the primary health-care sector in India is reported. Three cases—the India Health Care Project, Family Health Information Management System, and Integrated Health Information Management Systems—are presented. The authors argue against adopting a technocentric approach during the development of the HIS and suggest that these efforts should be sensitive to the sociotechnical context. Furthermore, a variety of constraints are identified. The chapter concludes with a discussion on the potentials of integration to address some of the identified constraints.

INTRODUCTION: THE CHALLENGES OF HIS IN DEVELOPING COUNTRIES

The plural of datum is not information.
~ Anonymous

Information and communication technologies in primary health-care settings offer a number of opportunities to enhance the efficiency of administration and improve the delivery of health-care services. Health information systems (HISs), geographic information systems (GISs), telemedicine, Web-based initiatives, and the development of health-care databases (see Bodavala, 2002) are examples of a few ICT-based initiatives currently ongoing in the primary health sector in India, and also in other developing countries. Despite the undoubted potential that ICTs provide, obtaining their practical benefits on the ground is a very complex undertaking, and there are various reports of total, partial, sustainability, and replication failures (Heeks, Mundy, & Salazar, 2000). Contributing to this unrealized potential are a number of complex interrelated issues such as inadequacies in both the computer-based infrastructure (for example, Nhampossa, 2004) and physical infrastructure of roads and transportation, which are required for the transmission of reports (Mosse & Nielsen, 2004); that is, there is a lack of proper network infrastructure, the persistent presence of legacy systems embroiled with different institutional interests (Nhampossa), weak human-resource capacities both in numbers and skills (Chilundo, 2004), heavy workload of health staff who need to give priority to providing care over administrative tasks like reporting (Mosse & Sahay, 2003), and a culture of information use that sees periodic reports as primarily fulfilling the needs of the bureaucracy rather than using the information to support action (Quraishy & Gregory, 2005). All these contextual influences make the challenge of introducing ICTs in the health-care sector a very difficult one in practice (Sahay, 2001).

The critical role that HISs can play in public health has been emphasized since the early 1980s in attempts to integrate data collection, processing, reporting, and use to strengthen management at all levels of health services (Lippeveld, Sauerborn, & Bodart, 2000). HISs in most developing countries have been described by researchers and also policy documents emerging from international agencies as being grossly inadequate (for example, Lippeveld, Foltz, and Mahouri, 1992; World Health Organisation [WHO], 1987). Sauerborn and Lippeveld (2000) argue that this ineffectiveness stems from various reasons including the irrelevance and poor quality of data being gathered, duplication and waste among parallel HISs, lack of timely reporting and feedback, and poor use of information. As a result, what we typically find is HISs that are data led rather than action led (Sandiford, Annett, & Cibulski, 1992); in this sense data is an end in itself rather than a basis for planning, decision making, and evaluating interventions. Institutionally, HISs in developing countries are situated in rather centralized structures (Braa, Heywood, & Shung King, 1997; Braa & Nermukh, 2000; Braa et al., 2001) in which local use of information is not encouraged (Opit, 1987). This has led Sandiford et al. to comment that what is needed is not necessarily more information but more use of information.

While as a part of various health reform efforts, including HIS, ICTs are being actively introduced by international agencies and national and local governments, what is often found is that the focus of such efforts are primarily on the means, computerization, rather than the ends of what needs to be achieved: strengthening information support for health management. Introducing ICTs in the development of HIS is not necessarily the silver bullet that solves the efficiency problem of the health services (Sandiford et al., 1992), and over the years research has emphasized that critical issues to be addressed in the implementation of IS are social and organisational, not solely technical (Anderson & Aydin, 1997; Walsham, 1993). As Helfenbein et al. (1987) have argued, changing the way information is gathered, processed, and used for decision making implies making changes in the way an organisation operates. They also